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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,608	10/29/2003	James E. Chomas	2003P12084US	6862

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Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

CATTUNGAL, SANJAY

ART UNIT	PAPER NUMBER
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3768

MAIL DATE	DELIVERY MODE
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02/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/696,608	Applicant(s) CHOMAS ET AL.	
	Examiner SANJAY CATTUNGAL	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 AND 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/26/2008; 02/03/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-16 and 23-25 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,684,098 to Oshio et al.

Regarding **Claims 1, 3, 5, and 6**, Oshio teaches a method for stabilizing an image plane in medical imaging, the method comprising: tracking motion within a region; and automatically altering an acquisition scan plane position relative to a transducer as a function of the motion (Col. 21 lines 20-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio in view of Sumanaweera (US 5,967,987).

Re Claims **4, 7-9**: Although Oshio does not teach the rotation of the scan plane but Sumanaweera teaches measurements are obtained for two or more scan planes 34. The transducer 30 is moved so that the scan plane 34 intersects the enclosed structure 32 at a different orientation. For example, the transducer 30 is rotated, translated or slid to a second position such that the same general region of the enclosed structure is interrogated at a different orientation. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made that it is necessary to have an intersection between the scan planes and the structure 32. This could be accomplished by rotating the transducer or the scan plane.

Re Claims **10 and 11** : Although Sumanaweera does not teach the grouped set of beams spaced apart within the three dimensional vol. Sumanaweera teaches the use of transmitting acoustic energy and collected the reflection with transducer and altering the, the transducer 30 is rotated, translated or slid to a second position such that the same general region of the enclosed structure is interrogated at a different orientation.

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Sumanaweera further process the result of the scan plane position in response to the motion and displays the images responsive to the scanning on display 110. (See Fig. 2 and 3) Therefore it would have been obvious to one ordinary skill in the art at the time of the invention was made to emit beam(s) individually or in group of beams in order to further collect the reflected beams by the transducer 30 to have a better understanding of the motion of the 3-D subject within the structure under examination. These received data will further be processed and displayed on the screen.

Re **claim 12 and 13**: Although Oshio does not teach the shifting of the two-dimensional images as function of an initial position of the region Sumanaweera teaches the estimates, such as Doppler velocity, and/or any B-mode information representing the scan plane, are provided to the scan converter 108. The scan converter 108 is a processor for formatting the estimates into a Cartesian coordinate system for display (Col.3, line 54-58).

Therefore it would have been obvious that a converter 108 could perform the shifting of the two-dimensional images in order to format the data in Cartesian coordinate before being displayed on screen.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio in view of Melton (US 5,373,848).

Regarding **claims 14 and 15**: Although Oshio does not teach the tracking of the motion comprises tracking one of speckle and spatial gradient, Melton teaches

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according to the invention, in order to determine blood flow independent of direction, the interrogation volume is made substantially spherical. For this case, this means that the volume is symmetric with respect to the spatial gradient along any axis that passes through its center (not just the x-y-z system shown in the figures), (See Col. 5, line 50-55).

Therefore it would have been obvious for one ordinary skill in the art at the time of the invention was made to apply spatial gradient thought by Melton for a symmetric fluid like blood in vessel in order to find the blood flow independent of direction.

Claims 2 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshio in view of Hossack (US 6,083,168) (Hossack).

Regarding **Claims 23-25**: Although Oshio does not teach the automatically altering an acquisition volume position to be relative to a transducer.

Hossack teaches the method of an ultrasound imaging comprises the steps of measuring motion of a transducer array by measuring motion of a sub-block of pixels between at least two ultrasound-image frames and automatically altering an operating mode of a transducer array in response to an absence of measured motion.

Hossack also teaches the system applies different imaging parameters within and outside a region of interest in an ultrasound image to improve spatial and/or temporal resolution inside a region of interest and motion estimation logic 190 performing an image motion tracking technique can determine frame-to-frame motion of

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a sub-block of pixels. Therefore it would have been obvious to one ordinary skill in the art at the time of the invention was made to automatically alter an acquisition volume position as a function of motion to improve the resolution and operation.

Regarding **Claim 2** Hossack teaches a method that comprises performing one of a cross-correlation and a sum of absolute differences. (Col. 10 lines 59-65)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on 9:30 - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPC

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768